

AMENDMENTS TO THE CLAIMS

1-44. (Canceled)

45. (New) A method of screening for a substance capable of operating an aberrant receptor being a receptor with a mutation in the structural gene resulting in substantially changed affinity for the natural ligand, which method comprises:

- (a) expressing an aberrant genetic product by gene engineering technology;
- (b) bringing the aberrant receptor obtained in (a) into contact with a subject substance; and
- (c) assaying the operation activity of said substance on said receptor.

46. (New) The method according to claim 45, wherein the aberrant receptor causes a disease due to the substantial change in the affinity of said natural ligand, which method further comprises:

- (d) selecting an agonist or antagonist to the aberrant receptor.

47. (New) The method of claim 45 which is suitable for screening for a drug for restoring normal function to a signal transduction system of a cell having an aberrant receptor of a mammal suffering from a disease caused by the aberrant receptor, which method comprises

- (c) assaying the activity of said substance on said receptor and wherein the activity is an activity that restores the normal function of the cell.

48. (New) The method according to claim 45, which is suitable for identifying a drug for treatment of a disease caused by an aberrant receptor, which method comprises

(c) assaying the activity of said substance on said product and preparing a substance judged to substantially operate the signal transduction system of a cell having the aberrant receptor wherein said activity is activity that restores wild-type activity of the receptor.

49. (New) The method according to claim 45, which is suitable for identifying a substance for treatment of a disease caused by an aberrant receptor, which method comprises

(c) assaying the activity of said substance on the aberrant receptor and preparing a substance judged to substantially operate the signal transduction system of a cell having the aberrant receptor, wherein said activity is activity that restores wild-type activity to the receptor.

50. (New) The method according to claim 47 or 49, wherein the aberrant receptor is an aberrant receptor prepared by expressing in a cell the gene encoding the aberrant receptor.

51. (New) The method according to claim 50 wherein the gene encoding the aberrant receptor is an aberrant receptor encoding gene specified by comparative analysis of a gene prepared from a cell of a mammal suffering from a disease caused by the aberrant receptor, and a gene prepared from a cell of a mammal of the same species that does not carry the aberrant receptor.

52. (New) The method according to claim 45 which is suitable for screening for an agonist or antagonist to an aberrant receptor and which comprises expressing in a cell the gene encoding the aberrant receptor, separating the aberrant receptor, providing a substance with the aberrant receptor and determining operation activity of said substance as said receptor.

53. (New) The method according to claim 52, wherein the substance is a substance that normally operates said receptor.

54. (New) The method according to claim 45, wherein the operation activity is a change in intracellular concentrations of responding substances selected from cAMP, inositol phosphate and calcium ion.

55. (New) The method according to claim 45, wherein the aberrant receptor is a adrenergic receptor.

56. (New) The method of claim 55, wherein the adrenergic receptor is a β 3 adrenergic receptor.

57. (New) The method of claim 56, wherein the β 3 adrenergic receptor is the Trp64Arg variant.